

oceanic islands which possess no indigenous Mammals; this rule is, however, subject to exceptions among the lizards, which apparently have some unknown way of passing over the ocean (probably in the egg state), as they are found to inhabit many islands where there are neither Mammals nor snakes. Snakes entirely cease at 60° N. lat., and at 6,000 feet elevation in the Alps. Lizards, though essentially tropical, go sometimes farther north than snakes, and ascend higher, reaching 10,000 feet in the Alps. Amphibians extend much farther north; Frogs to within the Arctic circle; their eggs are no doubt carried certain distances by aquatic birds, but salt water is fatal to them, and deserts and oceans constitute the most effectual barriers to their dispersal.

"Further remarks on the possible mode of transport of Reptiles to remote distances are made, vol. i. pp. 400-401, where the author treats of the points of similarity between the fauna of the Australian region and that of South America.

"Describing first in detail the faunæ of the six great geographical regions (Neotropical, Nearctic, Palearctic, Ethiopian, Oriental, and Australian), the author refers successively to the Reptiles in their subordinate relation to each fauna, and afterwards, vol. ii. pp. 372-423, collects his results and tabulates them under the heads of the different families."

None of the other recorders seem to make mention of the work, except Dr. von Martens, who, under the head of *Mollusca*, contents himself with the following:—

"A. R. WALLACE gives an outline of the geographical distribution of the terrestrial (and freshwater) Mollusca in his 'Geographical Distribution of Animals,' vol. ii. pp. 512-529 and 534-535, and some instances of means for their passive dispersal, vol. i. p. 31."

Now we humbly submit that no adequate idea of Mr. Wallace's work is given by any one of these notices separately nor by all of them combined. As we said on the last occasion, we cannot find it in us to criticise the recorders, though they differ greatly (and this will be evident from the above extracts) in their mode of treatment. But in a case like this the editorial hand might surely be shown with advantage, and none can doubt that in a few sentences Mr. Rye, had his scheme allowed it, would have been able to put the reader in possession of Mr. Wallace's general principles and general results, while the different recorders would still be left to show how those principles and those results affect their respective branches.

It is, perhaps premature to say that the excellent plan of giving an index to the genera and sub-genera recorded as new, and of marking those names that had been bestowed before, has yet had the wholesome disciplinary effect that was expected of it, but there are indications that such is the case. The index to last year's volume showed that *fifty-nine* preoccupied names, implicating *thirty-seven* authors, had been reintroduced to zoological literature in the year 1875. The present volume shows the corresponding numbers to be *thirty-six* and *twenty-eight*—a manifest improvement, though not quite so great as at first sight appears, since in 1875 nearly a thousand new genera or sub-genera were instituted, while in 1876 the number is only about *eight hundred and seventy*. No one has again sinned as M. Mulsant did on the last occasion, but it seems strange that so learned an entomologist as Dr. Leconte should now head the list of offenders with *four* homonyms, and we suspect this must

be due to a different reading of the laws of nomenclature which may obtain in America. Next to him come Messrs. Cope, Dybowski, Jacovleff,¹ Kirchenpauer, Linstow and Snellen with *two* each, and the rest with one. The selection of the same name, *Coptingis*, for two apparently distinct genera of *Erotylidae* by M. Chapuis and the late Mr. G. R. Crotch, is curious, and the Arachnid *Corynethrix* of Dr. Koch, and the Thysanurous *Corynothrix* of Herr Tullberg seem to clash with one another. Collisions of this kind are, of course, unavoidable, but of the three dozen homonyms which come into the crop of 1876, a score-and-a-half might certainly have been avoided had their authors but followed the advice of Mr. Rye's motto:—

"Explorate solum: sic fit via certior ultra."

That is to say had they consulted their Agassiz's *Nomenclator* and used the *Zoological Record*.

It remains for us to say that the present volume contains an abstract of the zoological portion of more than two hundred-and-fifty distinct periodicals, besides separately published works, and that those journals hold a good deal hardly any one requires to be told. Nevertheless, it may be new to some of our readers to learn that papers which have appeared in the older volumes of many of these periodicals are in so much request that lists of them, with the proper pagination, are being reprinted. This has been done in the *Deutsche entomologische Zeitschrift*, by Herren von Heyden and F. Blücher, with regard to the entomological articles in the first sixteen volumes of *Der zoologische Garten*, the first thirteen of the *Verhandlungen des naturforschenden Vereines in Brünn*, four volumes of the *Bulletin de la Société des Naturalistes de Moscou*, and fourteen of the *Archiv für Naturgeschichte*. Trusting that next year we may be able to congratulate Mr. Rye and his fellow-labourers on having a more promising prospect before them, we bid them be of good cheer, for they have the sympathies of all who know how to appreciate hard and honest work.

OUR BOOK SHELF

Annual Report and Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society. Vol. VI. Part II. 1877-78. (Plymouth: Bredon and Son.)

THIS Report seems to us to deserve more than the passing notice we gave it in a recent note on the Reports of provincial societies. The society embraces a wide range of work—science, history, archaeology—and many of the papers which it publishes will compare favourably with papers of a similar class read in metropolitan societies. The society has a large membership, and valuable collections in various departments. In the Report before us the president, Prof. Anthony, discusses various interesting points in connection with the doctrine of evolution, and although he holds the theory to be "not proven," his discussion of the subject is fair. Mr. R. N. Worth, a great authority on most subjects connected with Plymouth, has papers on "The Palaeontology of Plymouth," "The Early Commerce of Plymouth," a paper of much interest showing considerable research, and "The Ancient Heraldry of Plymouth." Mr. R. Briggs's paper on "The Hedgerows

¹ It is much to be wished that there were some recognised way of rendering Russian proper names into the languages of Western Europe. Germans, Frenchmen, and Italians, each render them phonetically, and of course the name is differently spelled according to the nation of the writer. Mr. Jacovleff's name thus appears also as Jakowleff, Yakovlev, and Jacovlev!

of Plymouth," is valuable and readable, containing the results of careful observation. "A Catalogue of the Geometrina of Plymouth and its Vicinity," by Mr. G. C. Bignell, will interest entomologists. "Our Obligation to Greek Thought," by Prof. Chapman, is a thoughtful paper, and there are several other excellent papers of historical and antiquarian interest.

Vulcanologische Studien. Von Dr. Eduard Reyer. (Wien: 1878.)

We have already had occasion to direct attention to the valuable contributions to the theory of volcanoes which have recently been published by Dr. Reyer, of Vienna. The memoir before us fully maintains the reputation of its author as an able investigator and original thinker. In it he discusses the nature of the materials which remain in the throat and deeper portions of a volcanic vent, after the eruptive action has ceased, and the features presented by those volcanic cones which are formed not by violent explosive action but by the quiet outwelling of liquid lava. Dr. Reyer's remarks on both these questions will be found to be eminently valuable and suggestive. J. W. J.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*]

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

Is the Sun One-sided?

WHEN Broun and Hornstein detected the existence of a terrestrial magnetic inequality, of which the period is nearly that of the sun's rotation, it was natural to regard this inequality as a direct result of the rotation of our luminary. Nevertheless, there are grave reasons against this hypothesis. In the first place, it is extremely difficult to imagine the sun to be one-sided in its magnetic influence. From what we know of our luminary, it must in a great measure be composed of gaseous matter, of which the outer layers are in violent motion, so that we can hardly imagine one meridian to be permanently different from another.

Another objection is derived from the fact that the period of this peculiar magnetic inequality (of whose existence there can be no doubt) is very nearly that of the sun's rotation in space, and decidedly less than that of its synodic rotation. Now, if we can imagine the sun to affect the earth in this peculiar manner, we should be inclined to suppose that the period of such influence would be that of its synodic rotation, that is to say, of its rotation with regard to the earth.

But if this inequality be not due to the sun's rotation, how (it may be asked) is it possible to account for it?

In the first place there is accumulating evidence of the existence of an intra-mercurial planet with a time of revolution, not differing greatly from that of the sun's rotation. Again, there can be little doubt that we have various magnetic inequalities, of which the periods are the same as those of the most prominent planetary configurations. May not, therefore, this magnetic inequality be connected with the intra-mercurial planet of the existence of which we are becoming sure, and is it not possible that a discussion of magnetic changes may aid us in settling this very interesting and important question?

St. Andrews, August 26

BALFOUR STEWART

Von Cotta's "Geologie der Gegenwart"

YOUR journal contains, in the number for August 8, a short notice of my newly-published "Geologie der Gegenwart," with a signal misrepresentation of the coloured frontispiece, beginning with the lines, "We can scarcely regard," to the end of the paragraph.

The illustration in question really is a representation of the fact that igneous rocks—both volcanic and plutonic—being originally products of the central parts of earth, form different

species, according to their being rich in silica (acidic rocks) or poor in silica (basic rocks), and according to their consolidation at a considerable depth as *plutonic*, or nearer the surface as *volcanic* rocks. Becoming solid at a great depth, the *acidic* fluids have formed granites or porphyrites; nearer the surface, trachytes or trachytic lavas. The *basic* fluids, on the other hand, became syenites or greenstones at a great depth, and basalts or basaltic lavas nearer the surface.

All these various rocks by no means belong to particular geological periods, but at all times have either overflowed or penetrated other formations, and been accompanied by tuff formations.

The misapprehension contained in your notice is doubly painful to me, because I think I have been the first German geologist who decidedly adopted Lyell's view with regard to the utter independence of the nature of rocks from their geologic age: witness the first edition of my "Geologie der Gegenwart," published in 1866.

BERNHARD V. COTTA

Freiberg

On the Wax of Pœcilioptera

A SPECIES of Pœcilioptera was this year rather common in the neighbourhood of this city, covering thickly the branches of *Cassia obtusifolia*, L., and more sparingly of *Cassia spectabilis*, D.C. I have not the means of identifying the species; I inclose, therefore, the wings of a specimen, so that some entomologist may give you the right name.¹ The females of Pœcilioptera, as indeed of many other Fulgoridæ, are known to have the property of secreting a wax-like substance from between their abdominal rings, and especially from peculiar appendages of the last ring. This substance is, in the present species, of a beautiful white colour, glossy like silk, and formed of exceedingly thin threads, 1-500 to 1-700 of a millimetre thick, and generally less than a centimetre long. When taken off the living insect, the latter will be found to produce new threads in somewhat less than twenty-four hours. The threads are pure wax, lighter than water, insoluble in cold alcohol and ether, but dissolving a little in hot alcohol, and very easily in hot benzol. The fusing-point I found by repeated experiments to be a little higher than that of boiling water, though I could not determine it exactly, owing to the small quantity of wax I had collected (from 150 insects I obtained but six centigrammes of wax). In a heated silver spoon, or on platin-foil, the wax melted very easily, leaving no residue whatever. The molten wax was at first of a light yellow colour, which disappeared again after its getting cold.

The late Mr. D. Hanbury, in a paper on the insect-white-wax of China ("Science Papers," 62), quotes the statement of Capt. Hutton as to the properties of the wax of *Flata limbata*, an insect closely related to the Pœcilioptera. It is said to "dissolve readily in water, while the attempt to melt it on the fire without water or oil proved altogether abortive, the wax merely burning and consuming away till it became converted into a hard and baked substance." This is certainly very singular, and it appears to me highly questionable whether Capt. Hutton's so-called *wax* was any wax at all.

I have not been able to find out what can be the benefit the insects derive from these copious secretions; but as they occur only in the females, there will probably be some connection with the egg-laying or hatching process. I observed no males, and could discover no eggs even in places where the females were thickly crowded on the branches. I should add that the insect is generally rather uncommon in our local fauna.

Caracas, July 15

A. ERNST

Spontaneous Combustion of Wasps' Nests

SOME time ago the house of General P. M. Arismendi (now Consul of Venezuela, in Port-of-Spain, Trinidad) in this city, had a rather narrow escape from being set on fire by the spontaneous combustion of a large wasps' nest (a species of *Polistes*) in a closet under a roof. The day was exceedingly hot; but this circumstance, I think, has a very slight connection (if any at all) with the outbreak of smoke from the nest. Roofs in this country are constructed of tiles supported by a thick layer of compact earth, which rests on the usual lath-work of dry canes (the stems of *Gynerium saccharoides*, or arborescent grass), both being substances that conduct heat very badly.

¹ An entomological correspondent informs us that the wing is that of *Pœcilioptera phalaenoides*, Linn., and agrees with Stoll's figure of the insect from Surinam.—Ed.